PicoScope 3000 A and B Series

PC Oscilloscopes and MSOs

User's Guide

ps3000ab.en iss3
Copyright © 2012 Pico Technology Limited. All rights reserved.

pico
Technology

Contents

1 Welcome 1

2 Introduction 2

1 Safety symbols 2
2 Safety warning 2
3 FCC notice 3
4 CE notice 3
5 Licence conditions 4
6 Trademarks 5
7 Warranty 5
8 Company details 5
9 Minimum system requirements 6
10 Cleaning 6

3 Pack contents 7

4 Installation 8

5 Product information 9

1 Model comparison table 10
2 Connector diagrams 11
3 Moving to another USB port 14
4 Compensating probes 14

6 Glossary 15

7 Appendix A: Declaration of Conformity 17

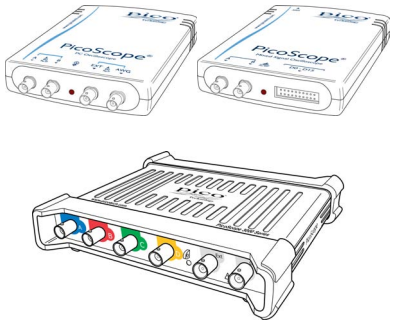
Index 21

Copyright © 2012 Pico Technology Limited. All rights reserved.

pico
Technology

1 Welcome

Thank you for buying a PicoScope 3000 Series PC Oscilloscope from Pico Technology!



The PicoScope 3000 A and B Series PC Oscilloscopes and MSOs 15 from Pico Technology are a range of high-specification real-time measuring instruments that connect to the USB port of your computer. With the PicoScope software you can use these devices as oscilloscopes and spectrum analyzers. With various options of portability, deep memory, mixed signals, fast sampling rates and high bandwidth, these highly versatile oscilloscopes suit a wide range of applications.

The A models are high speed portable oscilloscopes with a function generator:

PicoScope 3204A	PicoScope 3205A	PicoScope 3206A
PicoScope 3404A	PicoScope 3405A	PicoScope 3406A

The B models are as the A models, but feature an arbitrary waveform generator and deeper memory:

PicoScope 3204B	PicoScope 3205B	PicoScope 3206B
PicoScope 3404B	PicoScope 3405B	PicoScope 3406B

The MSO (mixed-signal-oscilloscope) models are as the B models, but with the addition of 16 digital inputs:

PicoScope 3204 MSO	PicoScope 3205 MSO	PicoScope 3206 MSO

Here are some of the benefits provided by the PicoScope 3000 Series oscilloscopes:

- Portability: Take the unit with you and plug it in to any Windows PC.
- Performance: Up to 1 GS/s sampling, 200 MHz bandwidth and 128 MS buffer.
- Mixed signal capability: Display analog and digital signals on the same timebase with the PicoScope 3204/5/6 MSOs.
- Programmability: The PicoScope 3000A SDK lets you write your own programs, in your chosen programming language, to control all the features of the scope. Using the API functions, you can develop your own programs to collect and analyze data from the oscilloscope. Refer to the "PicoScope 3000 Series (A API) Programmer's Guide" for more information.
- Long-term support: Software upgrades are available to download from our website. You can also call our technical specialists for support. You can continue to use both of these services free of charge for the lifetime of the product.
- Value for money: You don't have to pay twice for all the features that you already have in your PC, as the PicoScope 3000 Series oscilloscope contains the special hardware you need and nothing more.
- Convenience: The software makes full use of the full-sized display, disk storage, user interface and networking built in to your PC.
- Five-year warranty: Your oscilloscope is covered for five years from the day of purchase against manufacturing faults. We don't charge a penny extra for this benefit.

For further information on the PicoScope 3000 A and B Series oscilloscopes and MSOs, see the comparison table 10 in this manual, and the specifications tables in the PicoScope 3000 Series data sheets available on our website.

Copyright © 2012 Pico Technology Limited. All rights reserved.

2 Introduction

2.1 Safety symbols

Warning Triangle

This symbol indicates that a safety hazard exists on the indicated connections if correct precautions are not taken. Read all safety documentation associated with the product before using it.

2.2 Safety warning

We strongly recommend that you read the general safety information below before using your oscilloscope for the first time. Safety protection built in to equipment may cease to function if the equipment is used incorrectly. This could cause damage to your computer, or lead to injury to yourself and others.

Maximum input range
The PicoScope 3000 A and B Series PC Oscilloscopes and MSOs are designed to measure voltages in the range -20 V to +20 V. Attempting to measure voltages outside this range (other than using a differential or isolating probe specifically designed for this purpose) may expose the user to a risk of electric shock. The analog inputs of the PicoScope 3000 A and B Series PC Oscilloscopes and MSOs are protected to ±100 V. The digital inputs of the MSOs are protected to ±50 V. Contact with voltages outside the protection range may cause permanent damage to the unit.

Mains (line) voltages

PicoScope 3000 Series oscilloscopes are not designed for use with mains (line) voltages. To measure mains (or line) voltage, use a differential isolating probe specifically designed for that purpose.

Safety grounding

PicoScope 3000 A and B Series PC Oscilloscopes connect directly to the ground of a computer through the USB cable provided to minimize interference.

Avoid connecting the ground input to any potential other than ground. The outer shells of the BNC connectors, and the ground pins of the MSOs' digital inputs, are all at the same potential (shorted together). If in doubt, use a meter to check that there is no significant AC or DC voltage between the ground input of the oscilloscope and the point to which you intend to connect it, as this may cause a large current to flow. Failure to check may cause damage to your computer and connected equipment, or lead to injury to yourself and others.

Do not rely on the product to provide a protective safety earth.

Repairs

The oscilloscope contains no user-serviceable parts. Repair or calibration of the oscilloscope requires specialized test equipment and must be performed by Pico Technology.

Copyright © 2012 Pico Technology Limited. All rights reserved.

2.3 FCC notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his or her own expense.

For safety and maintenance information see the safety warning 2.

2.4 CE notice

The PicoScope 3000 A and B Series PC Oscilloscopes meet the intent of the EMC directive 89/336/EEC and have been tested to EN61326-1:2006 Class A Emissions and Immunity standard.

The product also meets the intent of the Low Voltage Directive and has been designed to meet BS EN 61010-1:2010 Safety requirements for electrical equipment for measurement, control, and laboratory use standard.

Copyright © 2012 Pico Technology Limited. All rights reserved.

2.5 Licence conditions

The software supplied with this product is licensed, not sold. Pico Technology Limited grants a licence to the person who installs this software, subject to the conditions listed below:

Access. The licensee agrees to allow access to this software only to persons who have been informed of these conditions and agree to abide by them.

Usage. The software in this release is for use only with Pico Technology products or with data collected using Pico Technology products.

Copyright. Pico Technology Limited claims the copyright of, and retains the rights to, all material (software, documents etc.) contained in this release. You may copy and distribute the entire release in its original state, but must not copy individual items within the release other than for backup purposes.

Liability. Pico Technology and its agents shall not be liable for any loss, damage or injury, howsoever caused, related to the use of Pico Technology equipment or software, unless excluded by statute.

Fitness for purpose. Because no two applications are the same, Pico Technology cannot guarantee that its equipment or software is suitable for a given application. It is your responsibility, therefore, to ensure that the product is suitable for your application.

Mission-critical applications. This software is intended for use on a computer that may be running other software products. For this reason, one of the conditions of the licence is that it excludes usage in mission-critical applications; for example, life-support systems.

Viruses. This software was continuously monitored for viruses during production, but you are responsible for virus-checking the software once it is installed.

Support. If you are dissatisfied with the performance of this software, please contact our technical support staff, who will try to fix the problem within a reasonable time. If you are still dissatisfied, please return the product and software to your supplier within 14 days of purchase for a full refund.

Upgrades. We provide upgrades, free of charge, from our website at www.picotech.com. We reserve the right to charge for updates or replacements sent out on physical media.

Copyright © 2012 Pico Technology Limited. All rights reserved.

2.6 Trademarks

Windows is a registered trademark of Microsoft Corporation in the USA and other countries.

Pico Technology Limited and *PicoScope* are trademarks of Pico Technology Limited registered in the United Kingdom and other countries.

2.7 Warranty

Pico Technology warrants upon delivery, and for a period of 5 years unless otherwise stated from the date of delivery, that the Goods will be free from defects in material and workmanship.

Pico Technology shall not be liable for a breach of the warranty if the defect has been caused by fair wear and tear, willful damage, negligence, abnormal working conditions or failure to follow Pico Technology's spoken or written advice on the storage, installation, commissioning, use or maintenance of the Goods or (if no advice has been given) good trade practice; or if the Customer alters or repairs such Goods without the written consent of Pico Technology.

2.8 Company details

Address:

Pico Technology Limited
James House,
Colmworth Business Park,
St Neots,
Cambridgeshire PE19 8YP
United Kingdom

Phone: +44 (0) 1480 396 395
Fax: +44 (0) 1480 396 296

Email:

Technical Support: support@picotech.com
Sales: sales@picotech.com

Web site: www.picotech.com

Copyright © 2012 Pico Technology Limited. All rights reserved.

2.9 Minimum system requirements

To ensure that your PicoScope 3000 Series PC Oscilloscope operates correctly, you must have a computer with at least the minimum system requirements to run one of the supported operating systems, as shown in the following table. The performance of the oscilloscope will be better with a more powerful PC, and will benefit from a multi-core processor.

Item	Absolute minimum	Recommended minimum	Recommended full specification
Operating system	Windows XP SP2 Windows Vista Windows 7 Windows 8*		
	32 bit and 64 bit versions supported		
Processor	As required by Windows	300 MHz	1 GHz
Memory		256 MB	512 MB
Free disk space**		1.5 GB	2 GB
Ports	USB 1.1 compliant port	USB 2.0/3.0 compliant port	

* Not Windows RT.

** The PicoScope software does not use all the disk space specified in the table. The free space is required to make Windows run efficiently.

2.10 Cleaning

Clean the oscilloscope using a soft cloth dampened with a solution of mild soap or detergent in water.

CAUTION: Do not allow water to enter the oscilloscope casing, as this could damage the sensitive electronic components inside.

Copyright © 2012 Pico Technology Limited. All rights reserved.

3 Pack contents

A 2-channel PicoScope 3000 A or B Series PC Oscilloscope is supplied with the following items:

- USB cable, for use with any standard USB port
- Software and Reference CD
- Installation Guide
- 2 x Probes (see Model Comparison table 10 for probe details)

A 2-channel PicoScope 3000 Series MSO is supplied with the following items:

- USB cable, for use with any standard USB port
- 16 way 25 cm Digital cable
- 2 x Pack of 10 test clips
- Software and Reference CD
- Installation Guide
- 2 x Probes (see Model Comparison table 10 for probe details)

A 4-channel PicoScope 3000 A or B Series PC Oscilloscope is supplied with the following items:

- Double-headed USB cable, for use with any standard USB ports
- Single-headed USB cable, for use with any standard USB port
- AC Adapter
- Software and Reference CD
- Installation Guide
- 4 x Probes (see Model Comparison table 10 for probe details)

Copyright © 2012 Pico Technology Limited. All rights reserved.

4 Installation

> Important:
> Do not connect your PicoScope 3000 Series PC Oscilloscope to the PC until you have installed the software.

Please note that the 2-channel and 4-channel oscilloscope ranges have different power supply options, so it is important to consult the appropriate "2-channel" or "4-channel" section below.

2-Channel oscilloscopes (including MSOs)

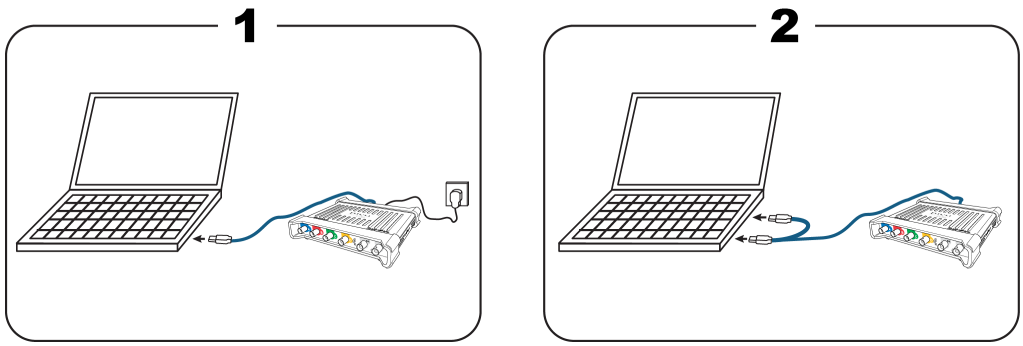
- Follow the instructions in the Installation Guide included with your product package.
- Connect your PC Oscilloscope to the PC using the USB cable supplied.
- There is no need for an additional power supply, as the unit obtains its power from the USB port.

4-Channel oscilloscopes

Follow the instructions in the Installation Guide and leaflet included with your product package.

With the 4-channel 3000 Series oscilloscopes, you have two options for power.

1. If your computer or USB hub does not have two free, powered USB ports, connect your 4-channel oscilloscope to the PC or hub using the single-headed USB cable supplied. Plug the power adapter into the mains and connect the DC cable to the DC power socket 11 on the rear of the oscilloscope (see image 1 below).
2. If your computer or USB hub has two free, powered USB ports, connect your 4-channel oscilloscope to the PC or hub using the double-headed USB cable supplied, ensuring that each USB plug is connected to a separate USB port (see image 2 below).



Note: If you connect or disconnect the AC adapter while the oscilloscope is in operation it will restart automatically, but any unsaved data will be lost.

Checking the installation

Once you have installed the software and connected the PC Oscilloscope to the PC, start the PicoScope software. The software should now display any signal connected to the scope inputs. If you have a probe connected to your oscilloscope, you should see a small 50 or 60 hertz signal in the oscilloscope window when you touch the probe tip with your finger.

Copyright © 2012 Pico Technology Limited. All rights reserved.

5 Product information

Standard oscilloscope connectors

The PicoScope 3000 Series PC Oscilloscopes have input channels with standard BNC connectors and standard input impedance. They are therefore compatible with most oscilloscope probes including x10 and switched x1/x10 types.

The probes supplied with the PicoScope 3000 A and B Series oscilloscopes and MSOs have been trimmed specifically for use with the scopes they are supplied with. For optimum performance, please use the probes supplied. Although other oscilloscope probes can be used, the specified performance cannot be guaranteed. Replacement probes matched to your PicoScope 3000 can be ordered from Pico Technology.

Signal generator (GEN) output

The GEN connector carries the output of the oscilloscope's built-in signal generator, which can generate a number of built-in waveforms, as well as user-defined arbitrary waveforms (B/MSO Models only).

- If you are using the PicoScope 6 program, refer to the *PicoScope 6 User's Guide* for information on how to configure the signal generator.
- If you are writing your own software, refer to the *PicoScope 3000 Series (A API) Programmer's Guide*.

External trigger (EXT) input (not MSOs)

The EXT input can be used as a trigger source. It is selected using the trigger drop-down menu in the PicoScope software, or using a function call if you are writing your own software.

The EXT input uses dedicated circuitry with a software-configurable threshold to detect a trigger signal. This has the advantage of freeing the analog channels for viewing signals. The input characteristics of the EXT input have been matched to a scope channel so that a supplied probe can be trimmed on one of the channels and then used with the EXT input to give best vertical accuracy. If trigger timing accuracy is critical, we recommend using one of the main input channels as the trigger source. These channels use accurate digital triggering (to one sample period) and have a vertical resolution of 1 LSB.

Copyright © 2012 Pico Technology Limited. All rights reserved.

5.1 Model comparison table

For full specifications, refer to the 3000 Series data sheets on your Software and Reference CD or to the 3000 Series page on www.picotech.com.

PicoScope 2-channel models					
Model	Bandwidth	Sampling	Memory	Waveform Output	Probes Supplied
3204A	60 MHz	500 MS/s	4 MS	Func. Gen.	2 x 60 MHz
3204B	60 MHz	500 MS/s	8 MS	Func. Gen. and AWG	2 x 60 MHz
3205A	100 MHz	500 MS/s	16 MS	Func. Gen.	2 x 150 MHz
3205B	100 MHz	500 MS/s	32 MS	Func. Gen. and AWG	2 x 150 MHz
3206A	200 MHz	500 MS/s	64 MS	Func. Gen.	2 x 250 MHz
3206B	200 MHz	500 MS/s	128 MS	Func. Gen. and AWG	2 x 250 MHz

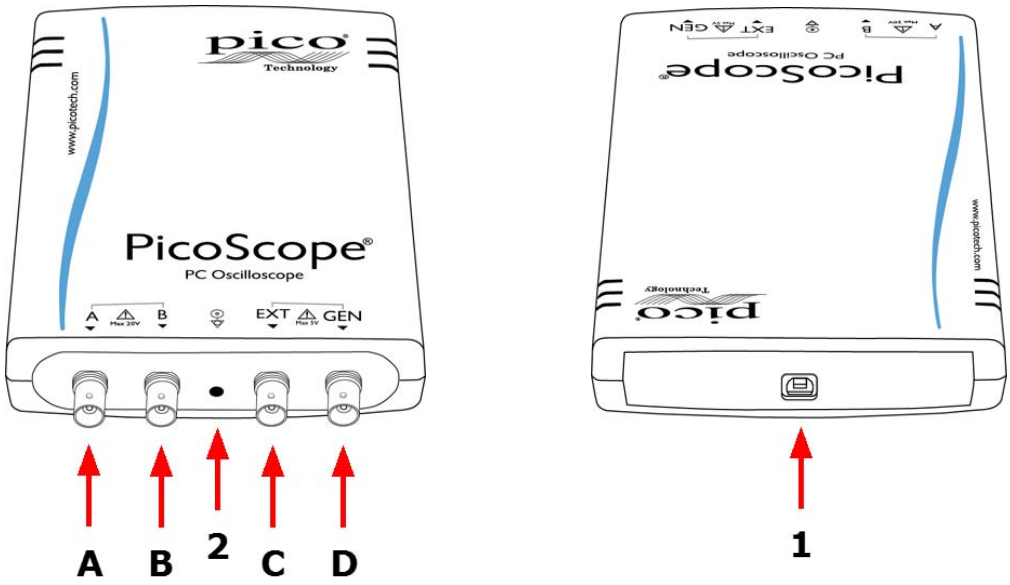
PicoScope 2-channel MSO models						
Model	Analog Bandwidth	Digital Maximum Frequency	Sampling	Memory	Waveform Output	Accessories Supplied
3204 MSO	60 MHz	100 MHz	500 MS/s	8 MS	Func. Gen. and AWG	2 x 60 MHz probes 1 x 20-way cable 2 x 10 pack clips
3205 MSO	100 MHz	100 MHz	500 MS/s	32 MS	Func. Gen. and AWG	2 x 150 MHz probes 1 x 20-way cable 2 x 10 pack clips
3206 MSO	200 MHz	100 MHz	500 MS/s	128 MS	Func. Gen. and AWG	2 x 250 MHz probes 1 x 20-way cable 2 x 10 pack clips

PicoScope 4-channel models					
Model	Bandwidth	Sampling	Memory	Waveform Output	Probes Supplied
3404A	60 MHz	1 GS/s	4 MS	Func. Gen.	4 x 60 MHz
3404B	60 MHz	1 GS/s	8 MS	Func. Gen. and AWG	4 x 60 MHz
3405A	100 MHz	1 GS/s	16 MS	Func. Gen.	4 x 150 MHz
3405B	100 MHz	1 GS/s	32 MS	Func. Gen. and AWG	4 x 150 MHz
3406A	200 MHz	1 GS/s	64 MS	Func. Gen.	4 x 250 MHz
3406B	200 MHz	1 GS/s	128 MS	Func. Gen. and AWG	4 x 250 MHz

Copyright © 2012 Pico Technology Limited. All rights reserved.

5.2 Connector diagrams

PicoScope 3000 A and B Series 2-channel oscilloscopes



1. USB port. For best results, use the high-quality USB cable supplied.

2. LED: flashes red when the oscilloscope is sampling data.

A. Input channel A

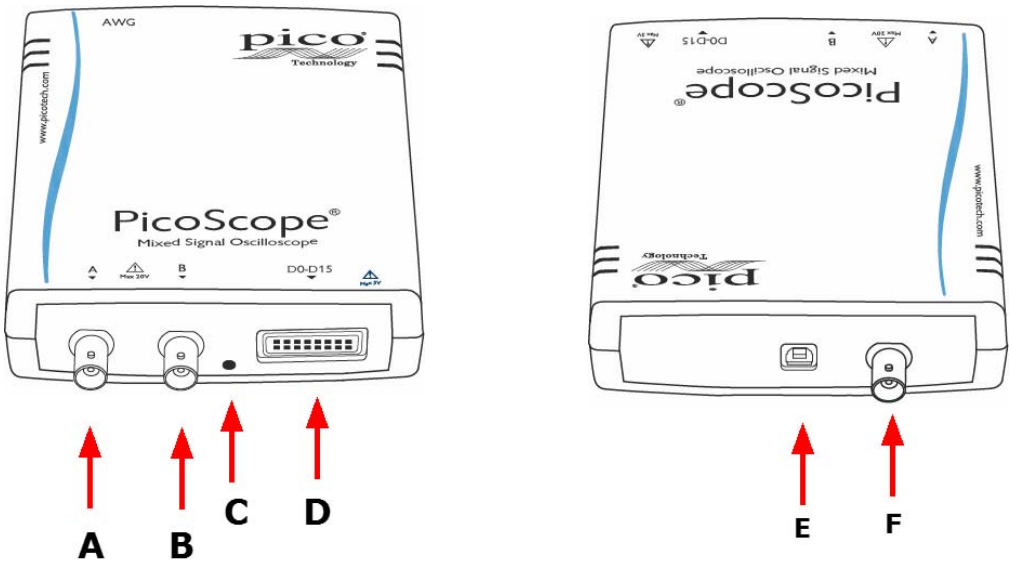
B. Input channel B

C. External trigger input

D. Signal generator output

Copyright © 2012 Pico Technology Limited. All rights reserved.

PicoScope 3000 Series MSOs



A. Input channel A

B. Input channel B

C. LED: shows when the oscilloscope is sampling data

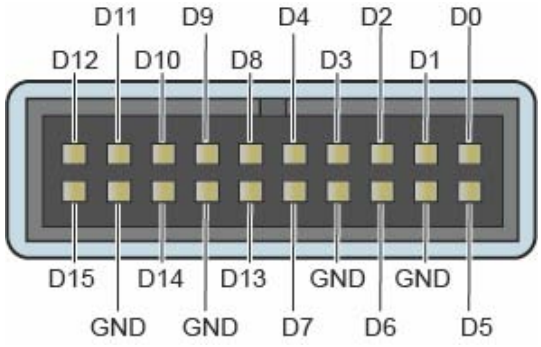
D. Digital inputs D0-D15 (see below for further detail)

E. USB port

F. AWG output

Digital input connection (D)

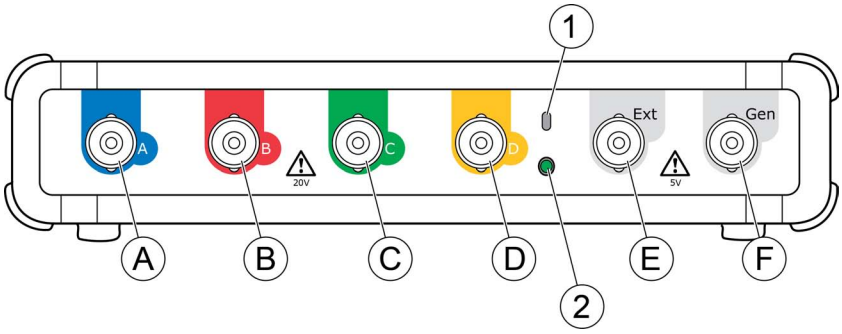
The digital input pins of the 20-pin IDC header plug are shown below. The diagram is drawn as you look at the front panel of the device.



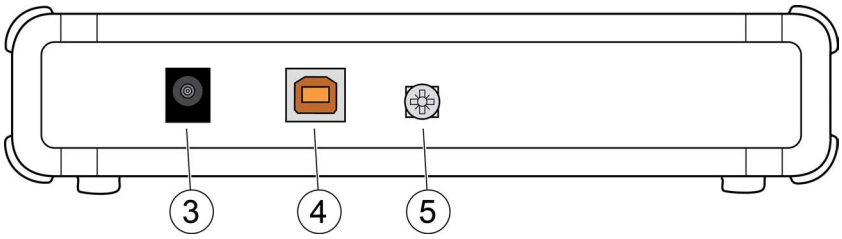
Copyright © 2012 Pico Technology Limited. All rights reserved.

PicoScope 3000 Series 4-channel oscilloscopes

Front



Rear



A. Input channel A

B. Input channel B

C. Input channel C

D. Input channel D

E. External trigger input

F. Signal generator output

1. Probe compensation output

2. LED: red when scope is connected, but not operating. Flashes green when the oscilloscope is sampling data.

3. DC power socket: for use with the AC adapter supplied. See "Power Options" leaflet for details.

4. USB 2.0 port: connects to your PC using the Hi-Speed USB cable supplied. See Installation 8 for powering options.

5. Earth terminal: helps to reduce interference when using a laptop. When using a laptop computer, the earth terminal can be connected to an external ground point (for example, on the system you are testing) to provide a ground reference for the scope. This can help to avoid external noise interfering with your measurements.

Copyright © 2012 Pico Technology Limited. All rights reserved.

5.3 Moving to another USB port

The procedure for moving your PicoScope PC Oscilloscope to another USB port depends on your operating system.

- Windows XP

When you first installed the PicoScope 3000 Series PC Oscilloscope by plugging it into a USB port, Windows associated the Pico driver with that port. If you later move the oscilloscope to a different USB port, Windows will display the "New Hardware Found Wizard" again. When this occurs, just click "Next" in the wizard to repeat the installation. If Windows gives a warning about Windows Logo Testing, click "Continue Anyway". As all the software you need is already installed on your computer, there is no need to insert the Pico Software CD again.

- Windows Vista, Windows 7 and Windows 8

The process is automatic. When you move the device from one port to another, Windows displays an "Installing device driver software" message and then a "PicoScope 3000 Series PC Oscilloscope" message. The PC Oscilloscope is then ready for use.

5.4 Compensating probes

We recommend that you compensate each oscilloscope probe before using it with your PicoScope. Compensation instructions specific to the probe are included in the leaflet supplied with the probe.

Connecting a probe for compensation (2-channel oscilloscopes and MSOs)

1. Plug the probe's BNC connector into the appropriate input channel on the scope.
2. Fit a BNC adapter (supplied with the probe) onto the probe tip.
3. Plug the probe tip with BNC adapter into the scope's generator output 11.
4. Run the PicoScope software.
5. Click the Signal Generator button and set the output to a 1 kHz 1.8 volt square wave. Set the input coupling to AC and then click Auto Setup, which should ensure that the correct range and timebase are selected.
6. Follow the compensation (or 'trimming') instructions in the probe leaflet.

Note: if the probe is moved to a different scope channel, the compensation procedure must be repeated.

Connecting a probe for compensation (4-channel oscilloscopes)

1. Plug the probe's BNC connector into the appropriate input channel on the scope.
2. Fit the spring hook (supplied with the probe) on the probe tip.
3. Attach the spring hook to the probe compensation output 11 located on the front panel.
4. Attach the ground lead (supplied) to the probe and connect the crocodile clip to the ground shell of one of the scope's BNC inputs.
5. Run the PicoScope software. Set the input coupling to AC and then click Auto Setup, which should ensure that the correct range and timebase are selected.
6. Follow the compensation (or 'trimming') instructions in the probe leaflet.

Note: if the probe is moved to a different scope channel, the compensation procedure must be repeated.

Copyright © 2012 Pico Technology Limited. All rights reserved.

6 Glossary

API. Application Programming Interface. A set of function calls that give programmers access to the PicoScope 3000 A/B Series driver.

Bandwidth. The range of input frequencies over which the measured signal amplitude is no more than 3 decibels below its true value.

Buffer size. The size of the oscilloscope buffer memory, measured in samples. In block mode, the buffer memory is used by the oscilloscope to store data temporarily. This allows the oscilloscope to sample data independently of the speed at which it can transfer data to the computer.

Device Manager. Device Manager is a Windows program that displays the current hardware configuration of your computer. For Windows XP: Right-click on 'My Computer,' choose 'Properties', then click the 'Hardware' tab and the 'Device Manager' button. For Windows Vista and Windows 7: From the Start Menu right-click on 'Computer', choose 'Properties', then click 'Device Manager' in the left panel.

Driver. A program that controls a piece of hardware. The driver for the PicoScope 3000 A and B Series PC Oscilloscopes and MSOs is supplied in the form of a 32-bit Windows DLL, ps3000a.dll. This is used by the PicoScope software, and by user-designed applications, to control the oscilloscopes.

External trigger. This is the BNC connector marked EXT on the PicoScope 3000 Series PC oscilloscopes. It can be used as a trigger source but not as a waveform input.

Maximum sampling rate. A figure indicating the maximum number of samples the oscilloscope can acquire per second. Maximum sample rates are usually given in MS/s (megasamples per second) or GS/s (gigasamples per second.) The higher the sampling rate of the oscilloscope, the more accurate the representation of the high-frequency details in a fast signal.

MS/s—Megasamples per second. Used to quantify the sampling rate of an oscilloscope.

MSO (Mixed signal oscilloscope). An oscilloscope that has both analog and digital inputs.

PC Oscilloscope. The instrument formed by connecting a PicoScope 3000 Series PC Oscilloscope to a computer running the PicoScope software application.

PicoScope software. This is a software product that accompanies all our oscilloscopes. It turns your PC into an oscilloscope, spectrum analyzer, and meter display.

Signal generator. A built-in circuit that generates signals suitable for driving an external device under test. Its output is on the BNC connector marked GEN on the oscilloscope. If you connect a BNC cable between this and one of the channel inputs, you can send a signal into one of the channels.

Timebase—A timer that controls the speed at which the scope device captures data. At slow timebases this process is visible as PicoScope draws the trace across the scope view from left to right, but at fast timebases PicoScope draws the whole trace in a single operation. The timebase is measured in units of time (such as seconds) per division. There are ten divisions across the scope view, so the total time across the width of the view is ten times the "per division" setting.

USB 1.1. USB (Universal Serial Bus) is a standard port that enables you to connect external devices to PCs. A typical USB 1.1 port supports a data transfer rate of 12 Mbps (12 megabits per second), much faster than an RS232 port.

USB 2.0. A typical USB 2.0 port supports a data transfer rate that is 40 times faster than USB 1.1. USB 2.0 is backwards-compatible with USB 1.1.

USB 3.0. A typical USB 3.0 port supports a data transfer rate that is 10 times faster than USB 2.0. USB 3.0 is backwards-compatible with USB 2.0 and USB 1.

Copyright © 2012 Pico Technology Limited. All rights reserved.

Vertical resolution—A value, in bits, indicating the precision with which the oscilloscope converts input voltages to digital values. The resolution enhancement function can improve the effective vertical resolution.

Voltage range—The range of input voltages that the oscilloscope can measure. For example, a voltage range of ±20 V means that the oscilloscope can measure voltages between -20 V and +20 V. Input voltages outside this range will not be measured correctly, but will not damage the instrument as long as they remain within the protection limits stated in the specifications.

Copyright © 2012 Pico Technology Limited. All rights reserved.

7 Appendix A: Declaration of Conformity

Pico Technology
James House, Marlborough Road.
Colmworth Business Park.
Eaton Socon, St Neots, Cambridgeshire.
PE19 8YP United Kingdom.
Tel: +44 1480 396395. Fax: +44 1480 396296

EC Declaration of Conformity

Pico Technology declares that the following products comply with the requirements of the specified Directives and Standards as listed below. Technical documentation required to demonstrate compliance to the standards is available for inspection by the relevant enforcement authorities. Products carry the CE mark.

Products covered by this Declaration:

PicoScope 3204 A & B 2 channel USB oscilloscopes.
PicoScope 3205 A & B 2 channel USB oscilloscopes.
PicoScope 3206 A & B 2 channel USB oscilloscopes.

EU Directives covered by this Declaration:

2004/108/EC Electromagnetic Compatibility Directive.
2006/95/EC Low Voltage Equipment Directive.

The Basis on which Conformity is being Declared:

EN61010-1:2010	Safety requirements for electrical equipment for measurement, control and laboratory use, general equipment requirements.
EN61010-2-030:2010	Particular requirements for testing and measuring circuits.
EN61326-1:2006	Electrical equipment for measurement, control and laboratory use – EMC requirements. Group 1, Class A equipment – (emissions section only)
EN61326-1:2006	Electrical equipment for measurement, control and laboratory use – EMC requirements. Basic Immunity – (immunity section only)
CFR 47:2009	Code of Federal Regulations FCC: part 15 Subpart B – Frequency devices – unintentional Radiators. Radiated emissions standard. Class A emissions.
EN61000-3-3:2008	Electromagnetic compatibility (EMC) - Part 3-3: limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current <16A per phase and not subject to conditional connection.
EN61000-3-2:2006	Electromagnetic compatibility (EMC) – Part 3-2 Limits – Limits for harmonic current emissions for equipment input current up to and including 16A per phase.

Alan Tong
Managing Director
September 2012

Signed

Pico Technology Limited is an internationally registered trade mark
Registered in England and Wales No. 2626181

Copyright © 2012 Pico Technology Limited. All rights reserved.

Pico Technology
James House, Marlborough Road.
Colmworth Business Park.
Eaton Socon, St Neots, Cambridgeshire.
PE19 8YP United Kingdom.
Tel: +44 1480 396395. Fax: +44 1480 396296

EC Declaration of Conformity

Pico Technology declares that the following products comply with the requirements of the specified Directives and Standards as listed below. Technical documentation required to demonstrate compliance to the standards is available for inspection by the relevant enforcement authorities. Products carry the CE mark.

Products covered by this declaration:

PicoScope 3204-MSO Mixed signal USB oscilloscope.
PicoScope 3205-MSO Mixed signal USB oscilloscope.
PicoScope 3206-MSO Mixed signal USB oscilloscope.

EU Directives covered by this declaration:

2004/108/EC - Electromagnetic Compatibility Directive.
2006/95/EC - Low Voltage Equipment Directive.

The basis on which conformity is being declared:

EN61010-1:2010	Safety requirements for electrical equipment for measurement, control and laboratory use, general equipment requirements.
EN61010-2-030:2010	Particular requirements for testing and measuring circuits.
EN61326-1:2006	Electrical equipment for measurement, control and laboratory use – EMC requirements. Group 1, Class A equipment – (emissions section only)
EN61326-1:2006	Electrical equipment for measurement, control and laboratory use – EMC requirements. Basic Immunity – (immunity section only)
CFR 47:2009	Code of Federal Regulations FCC: part 15 Subpart B – Frequency devices – unintentional Radiators. Radiated emissions standard. Class A emissions.
EN61000-3-3:2008	Electromagnetic compatibility (EMC) - Part 3-3: limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current <16A per phase and not subject to conditional connection.
EN61000-3-2:2006	Electromagnetic compatibility (EMC) – Part 3-2 Limits – Limits for harmonic current emissions for equipment input current up to and including 16A per phase.

Alan Tong
Managing Director
September 2012

Signed

Pico Technology Limited is an internationally registered trade mark
Registered in England and Wales No. 2626181

Copyright © 2012 Pico Technology Limited. All rights reserved.

Pico Technology
James House, Marlborough Road.
Colmworth Business Park.
Eaton Socon, St Neots, Cambridgeshire.
PE19 8YP United Kingdom.
Tel: +44 1480 396395. Fax: +44 1480 396296

EC Declaration of Conformity

Pico Technology declares that the following products comply with the requirements of the specified Directives and Standards as listed below. Technical documentation required to demonstrate compliance to the standards is available for inspection by the relevant enforcement authorities. Products carry the CE mark.

Products covered by this declaration:

PicoScope 3404 A & B	***4 channel USB oscilloscopes.***
PicoScope 3405 A & B	***4 channel USB oscilloscopes.***
PicoScope 3406 A & B	***4 channel USB oscilloscopes.***

EU Directives covered by this declaration:

2004/108/EC - Electromagnetic Compatibility Directive.
2006/95/EC - Low Voltage Equipment Directive.

The basis on which conformity is being declared:

EN61010-1:2010	Safety requirements for electrical equipment for measurement, control and laboratory use, general equipment requirements.
EN61010-2-030:2010	Particular requirements for testing and measuring circuits.
EN61326-1:2006	Electrical equipment for measurement, control and laboratory use – EMC requirements. Group 1, Class A equipment – (emissions section only)
EN61326-1:2006	Electrical equipment for measurement, control and laboratory use – EMC requirements. Basic Immunity – (immunity section only)
CFR 47:2009	Code of Federal Regulations FCC: part 15 Subpart B – Frequency devices – unintentional Radiators. Radiated emissions standard. Class A emissions.
EN61000-3-3:2008	Electromagnetic compatibility (EMC) - Part 3-3: limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current <16A per phase and not subject to conditional connection.
EN61000-3-2:2006	Electromagnetic compatibility (EMC) – Part 3-2 Limits – Limits for harmonic current emissions for equipment input current up to and including 16A per phase.

Alan Tong
Managing Director
May 2012

Signed

Pico Technology Limited is an internationally registered trade mark
Registered in England and Wales No. 2626181

Copyright © 2012 Pico Technology Limited. All rights reserved.

pico
Technology

Index

A

Arbitrary waveform generator 9

B

Bandwidth 10
Buffer size 10

C

Calibration 2
Cleaning 6
Company information 5
Compliance 3
Connections
- Arbitrary waveform generator 11
- Compensation output 11
- Earth terminal 11
- EXT connector 11
- External trigger 11
- Function generator 11
- GEN connector 11
- USB port 11, 14

Contact details 5

E

Earth terminal 9
EXT connector 9
External trigger 9

F

Function generator 9

G

GEN connector 9

L

LED 11
Licence conditions 4

M

Maximum input range 2
Maximum sampling rate 10
Memory 10
Model comparison 10
MSO 11

O

Oscilloscope probe 8, 9, 11
- compensating 14

P

Pack contents
- AC Adapter 7
- Installation Guide 7
- Probes 7
- Software and Reference CD 7
- USB cable (double-headed) 7
- USB cable (single-headed) 7

PicoScope 3000 Series 2, 6, 9
PicoScope software 8, 9
Probes 10

R

Repair 2

S

Safety
- symbols 2
- warning 2, 3

Signal generator 10
- output 9

Specifications 10
System requirements 6

T

Technical support 5
Test equipment 2
Trademarks 5

U

USB 6
USB cable double-headed 8
USB cable single-headed 8
USB port connection 9

W

Warranty 5

Copyright © 2012 Pico Technology Limited. All rights reserved.

pico
Technology

Copyright © 2012 Pico Technology Limited. All rights reserved.

Pico Technology

James House
Colmworth Business Park
ST. NEOTS
Cambridgeshire
PE19 8YP
United Kingdom
Tel: +44 (0) 1480 396 395
Fax: +44 (0) 1480 396 296
www.picotech.com

ps3000ab.en iss3 September 2012
Copyright © 2012 Pico Technology Limited. All rights reserved.